

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A hollow structural member for a vehicle frame having a weakened end section integral therewith for absorbing energy by deformation on application of a force.
2. The structural member of claim 1 wherein said member has a first wall thickness and said weakened end section includes a second wall thickness and wherein said first wall thickness is greater than said second wall thickness.
3. The structural member of claim 2 wherein said end section is provided with an initiation site for initiating said deformation.
4. The structural member of claim 3 wherein said initiation site comprises a tapered portion, with respect to the member, whereby said end section has a smaller cross sectional area than said member.
5. The structural member of claim 3 wherein said initiation site comprises a graduated reduction of wall thickness on said end section.
6. The structural member of claim 1 wherein said weakened end section includes a tapered portion, with respect to the member, whereby said end section has a smaller cross sectional area than said member.
7. The structural member of claim 1 wherein the wall thickness of the end section comprises a graduated reduction of wall thickness.
8. The structural member of claim 1 wherein said structural member comprises a vehicle frame side rail, cradle, or pillar.
9. The structural member of claim 4 wherein said structural member comprises a vehicle frame side rail, cradle, or pillar.

10. A hollow structural member for a vehicle frame having a weakened end section integral therewith for absorbing energy by deformation on application of a force and is provided with an initiation site for initiating said deformation;

- wherein said end section is provided with a reduced wall thickness thereby rendering the end section weaker than the remainder of said member; and
- wherein said initiation site comprises a tapered portion, with respect to the member, whereby said end section has a smaller cross sectional area than said member.

11. A method for forming a hollow structural member for a vehicle frame having a weakened end section integral therewith for absorbing energy, said end section having a reduced wall thickness, the method comprising the steps of:

- providing the member to be formed;
- providing a first die having an opening corresponding generally with the outer dimensions of the member;
- providing a mandrel for cooperating with said die, the mandrel having outer dimensions greater than the interior dimensions of the member, wherein said die is capable of sliding over the mandrel with a clearance corresponding to the desired reduced wall thickness of the member;
- placing the die over the member;
- moving said die over a first distance from the end of the member;
- inserting the mandrel into said hollow member;
- moving said mandrel over a second distance from the end of the member;
- sliding the die over the member and over the mandrel thereby causing the wall thickness of the member to be reduced when the die and mandrel are in cooperation.
- removing the mandrel.

12. The method of claim 11 further including a step of providing a means of initiating deformation on said end section.

13. The method of claim 11 further including:

- providing a second die having a tapered opening;
- sliding said second die over the end section of the member to force said end section to assume the shape of the second die opening;

- removing said second die.

14. The method of claim 11 wherein said structural member comprises a vehicle frame side rail, cradle, or pillar.

15. The method of claim 11 wherein said structural member comprises a vehicle frame side rail, cradle, or pillar.